APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/692,346	10/19/2000	Giles Roger Frazier	AUS9-2000-0632-US1	6625

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EXAMINER
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ART UNIT	PAPER NUMBER
2153	

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/692,346	FRAZIER ET AL.
	Examiner	Art Unit
	Bradley Edelman	2153

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *19 October 2000* .

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-28* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-28* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☒ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on *19 October 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____ .

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: .

DETAILED ACTION

This is a first office action on the merits of this application. Claims 1-28 are

presented for further examination.

Specification

1.   The disclosure is objected to because of the following informalities: the list of

related applications on pp. 1-2 of the specification must be updated to include the

present status of the related applications.

Claims 11 and 26 objected to because of the following informalities: there

appears to be a typo on line 2 of claim 11, and line 4 of claim 26. In both of these

claims, the word "node" should read "mode." Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2.   Claims 1-28 are rejected under 35 U.S.C. 112, first paragraph, as failing to

comply with the enablement requirement. The claim(s) contains subject matter which

was not described in the specification in such a way as to enable one skilled in the art to

which it pertains, or with which it is most nearly connected, to make and/or use the invention.

In considering independent claims 1, 13, 15, 16, and 28, the claims all contain the limitation of shifting to a master mode if no response is received from any node that is higher in priority than the requesting node, *and if all nodes in the network have been discovered*. (emphasis added) The specification fails to disclose this feature. Primarily, the specification fails to disclose a means for discovering *all* of the nodes on a network. Page 26 of the specification describes that packets can be sent to "all other nodes to gather information" (p. 26, line 2), but does not describe a means for ensuring that all nodes are actually *discovered*. Note that the invention contemplates a system where "hundreds or thousands of nodes may be present" (p. 23, lines 6-7). However, the specification provides no guidance as to how to ensure discovery of *all* of those hundreds and thousands of nodes, as broadly claimed. Just because a request is sent to a node does not necessarily mean that the node will be discovered. For instance, the request could be lost in the network, or a network node could be down, in which case it will not be discovered.

The specification actually describes that the shifting occurs "if the discovery process is complete." (p. 28, lines 3-6). However, this is different from discovering all nodes and shifting only if *all* nodes have been discovered. Thus, because the specification does not provide adequate means for implementing the function of discovering all nodes on the network, the specification does not enable the claimed invention.

The remaining claims depend from claims 1, 13, 15, 16, and 28, and are therefore rejected as well.

3.   Claims 1-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In considering independent claims 1, 13, 15, 16, and 28, these claims all contain similar ambiguous language that renders the claim unclear.

Claim 1, lines 6-8 state, "responsive to receiving a response to one of the requests from another node within the network computing system, identifying a second priority from the request." This language is unclear. First, this language implies that there are multiple requests, both from other nodes and from the discovering node. But then the claim refers to "the request." In addition, the claim requires that identification information is obtained from requests, but it appears from the specification that the *response* contains the identification information (see p. 26, ¶ 2). For these reasons, the claim is unclear and must be appropriately corrected.

Claims 13 (see lines 12-14), 15 (lines 7-10), 16 (lines 7-10), and 28 (lines 9-12) contain similar language that must be corrected.

The remaining claims depend from claims 1, 13, 15, 16, and 28, and are therefore rejected as well.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set
forth in section 102 of this title, if the differences between the subject matter sought to be patented and
the prior art are such that the subject matter as a whole would have been obvious at the time the
invention was made to a person having ordinary skill in the art to which said subject matter pertains.
Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims 1, 4-11, 13, 15, 16, 19-26, and 28 are rejected under 35 U.S.C. 103(a) as

being unpatentable over Naeimi et al. (U.S. Patent No. 6,363,416, hereinafter "Naeimi"),

in view of Haley (U.S. Patent No. 5,884,036).

Note: Regarding the independent claims, Examiner has interpreted the

ambiguous claim language (see above) as meaning that responses are sent to the initial

discovery requests, and those responses contain the second priority information.

In considering claim 1, as understood, Naeimi discloses a method in a node

within a network computing system ("node"), wherein the node is associated with a first

priority (the "more resourceful" node has priority; col. 10, lines 5-8), comprising:

Sending requests to the network computing system to discover other nodes

within the network computing system (col. 5, lines 19-25, "requesting node performing

master discovery broadcasts a master discovery request (MDReq) message over the

network. The MDReq message is received by all functioning nodes within the

network");

Responsive to receiving from another node in the system a response to one of

the requests, identifying a second priority from the response (col. 6, lines 5-11; col. 9,

lines 65-67; col. 10, lines 1-9);

Shifting to a standby mode if the second priority is higher than the first priority (col. 10, lines 1-9, wherein the less resourceful node concedes defeat, thereby shifting from a contention mode to a non-master, standby mode); and

Shifting to a master mode if no response is received from any node containing a priority higher than the first priority (col. 10, lines 1-9, wherein the more resourceful node shifts from the contention mode to a master mode), after all of the relevant network nodes have been discovered (i.e. all other masters).

A minor difference between Naeimi and the claimed invention, is that in Naeimi, the discover request is ignored by all non-master nodes in the network ("the MDReq message is received by all functioning nodes within the network but is ignored by all non-master nodes in accordance with the present invention," col. 5, lines 20-25), wherein the claimed invention recites "all of the nodes in the network have been discovered." Nonetheless, it is well known for a requesting network node to discover all nodes in its network, as evidenced by Haley. In a similar art, Haley discloses a network management system for discovering nodes in a network, wherein "the initiator node will be able to identify every node in the network" (col. 8, lines 30-31). Thus, a person having ordinary skill in the art would have readily recognized the desirability and advantages of requiring all of the nodes to be discovered in the system taught by Naeimi, to ensure that all nodes on the network are accounted for before any master selection occurs. Therefore, it would have been obvious to discover all of the nodes in the network taught by Naeimi, as suggested by Haley.

Claims 13, 15, 16, and 28 describe a data processing system, network computing system, and computer program product for performing the same method described in claim 1, and are thus rejected for the same reasons discussed above.

In considering claims 4 and 19, Naeimi further discloses that the network is a system area network (col. 1, lines 13-25, wherein Applicant's specification defines a system area network as follows: "SAN 100 can connect any number and any type of independent processor nodes and I/O adapter nodes." See p. 8, lines 7-9).

In considering claims 5 and 20, Naeimi further discloses that the request are system management packets (i.e. "discovery" packets).

In considering claims 6 and 21, Naeimi further discloses polling the master in the network computing system in response to shifting to a standby mode (col. 5, lines 3-6, 20-25 wherein a node polls the other master nodes when the node is powered on, and thus shifts into standby mode).

In considering claims 7 and 22, Naeimi further discloses that the polling occurs periodically (col. 5, lines 3-6, i.e. whenever a "heartbeat" message is not received within a particular time period).

In considering claims 8 and 23, Naeimi further discloses reinitiating the polling process if a response to polling of a master is absent (col. 5, lines 4-6, "when the node has not received a master heartbeat message ('heartbeat') within a predetermined timeout period").

In considering claims 9 and 24, Naeimi further discloses that a response is considered absent from the master when a response within a selected period of time has not been completed after the poll operation has been retried a number of times (col. 5, lines 4-6; col. 7, lines 4-11, "allow multiple heartbeat timeouts... to elapse before proceeding to step 350 to perform the master discovery process").

In considering claims 10 and 25, Naeimi further discloses that the polling steps are initiated prior to initialization of an operating system for the node (col. 5, line 3-5, "when the node is powered on").

In considering claims 11 and 26, Naeimi further discloses shifting from the master mode to the standby mode in response to receiving a message to handover mastership of the network computing system (col. 10, lines 4-9, wherein in response to a negotiation message from the other node, the node with lower priority (i.e. less resourceful) shifts from a master mode to a standby, non-master mode).

5.   Claims 2 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Naeimi and Haley, in view of Quoc et al. (U.S. Patent No. 6,092,214, hereinafter

"Quoc").

In considering claims 2, and 17, these claims require that if the two priorities are

equal, then the system compares two unique values of the two nodes, and the node

shifts into a standby node if the first unique value is less than the second unique value.

Naeimi does not disclose this, because Naeimi does not contemplate a scenario where

the priorities are equal (i.e. wherein the nodes are of equal resourcefulness).

Nonetheless, such equality of priorities is bound to occur, and Quoc teaches a method

for resolving a master negotiation in a network where priorities are equal. In a similar

art, Quoc discloses a network management system for selecting a master module in a

network system (Abstract), wherein the first criteria used to resolve a master contention

is a particular priority value (col. 8, lines 1-5, "master selection is based on a prioritized

list of criteria... [including] version of software being run by a module, with the most

recent version given priority"), and wherein if that comparison does not result in

determination of the master, a unique value is then used to make the selection (col. 8,

lines 5-8, "if neither of the first two criteria result in the determination of the Selection

Master, the unit number, an integer value based on a module's position in the stack,

may be used to make the selection").

Thus, given the teaching of Quoc, a person having ordinary skill in the art would

have readily recognized the desirability and advantages of using two levels of priority

selection for the master negotiation process taught by Naeimi, in case it is determined

that two nodes are equally resourceful. Therefore, it would have been obvious to compare a unique value of each node to select a master node in the system taught by Naeimi and Haley, in case the nodes have equal priority (selection of the lower versus the higher value is an arbitrary decision).

6.   Claims 3, 14, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Naeimi and Haley, in view of Quoc, and further in view of Rosner et al. (U.S. Patent No. 6,298,376, hereinafter "Rosner").

In considering claims 3, 14, and 18, these claims further limit the steps taught in claims 2 and 17, requiring that the "unique values" are globally unique identifiers. Although neither Naeimi, Haley, nor Quoc disclose the use of a "globally unique identifier," using globally unique identifiers to negotiate which node takes over as master in a distributed network system is well known, as evidenced by Rosner. In a similar art, Rosner discloses a network system for arbitrating which device in a network should be a master, wherein the master is selected according to which one has the lowest address on the LAN (col. 3, lines 28-40, 52-57, wherein the address is a globally unique identifier in the network). Given the teaching of Rosner, a person having ordinary skill in the art would have readily recognized the desirability and advantages of using a globally unique id as the "unique value" in the system taught by Naeimi and Quoc, because each node in a network will have a unique address, and thus use of the address to determine a master is sure to result in a single master being selected. Therefore, it

would have been obvious for the unique value taught by Naeimi, Haley, and Quoc to be

a globally unique network address, as taught by Rosner.

7.   Claims 12 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Naeimi and Haley, in view of Quoc, and further in view of Agnihotri et al. (U.S.

Patent No. 6,311,321, hereinafter "Agnihotri").

In considering claims 12 and 27, Naeimi further discloses shifting from a standby

to a non-active node (col. 5, lines 63-65, "powered off, becomes disabled, or is

otherwise incapable to communicate with the network"). Quoc additionally discloses

that the master node in the network can control operations of the standby, slave nodes

(col. 9, lines 4-21, "the master module monitors and coordinates all communication

between work stations on the network, sends alerts to a system administrator when

appropriate, and monitors and controls the status of I/O ports for all management

modules"). However, neither Quoc nor Naeimi disclose that the master instructs the

other network nodes to shift from a standby (i.e. slave) mode into a non-active (i.e.

powered off, or sleep) mode. Nonetheless, allowing a master management station to

instruct other workstations to shift from a standby (slave) mode to a non-active

(powered off) mode is well known, as evidenced by Agnihotri (see col. 1, lines 24-27,

55-64, describing that management applications are available to "monitor PC health...,

review system inventory, to power on, off and reboot remote PCs on the network").

Thus, given the teaching of Agnihotri, a person having ordinary skill in the art would

have readily recognized the desirability and advantages of allowing the master in the

system taught by Naeimi and Quoc to instruct the slave nodes to change from a

standby mode to a non-active (i.e. power-off) mode, as taught by Agnihotri, to save

power on the network. Therefore, it would have been obvious to allow the master in the

combined system taught by Naeimi, Haley, and Quoc to instruct the slave nodes to shift

from a standby mode to a non-active mode, as taught by Agnihotri.

Conclusion

The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

The following references are worthy of particular note:

a.   Heck et al. (U.S. Patent No. 5,729,686) teaches a network system for selecting a

master according to a two-step process, wherein the first step includes a priority

calculation (i.e. whichever node responds first), and the second step, which occurs if the

first step results in a tie, includes a particular numerical value to determine selection

(see Abstract; claim 1).

b.   Schnell (U.S. Patent No. 6,199,133) teaches a network management system for

selecting a master according to an identification number with a predetermined priority

(see Abstract; col. 11).

c.   Thompson (U.S. Patent No. 6,192,397) teaches a method for establishing a

master-slave relationship in a peer-to-peer network, wherein a random number is used

to determine priority for selecting the master (Title; Abstract; cols. 5-6).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bradley Edelman whose telephone number is (703) 306-3041. The examiner can normally be reached on Monday to Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glen Burgess can be reached on (703) 305-4792. The fax phone numbers for the organization where this application or proceeding is assigned are as follows:

For all correspondences: (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Bradley Edelman

BE
November 6, 2003